

Q: Fourier transform

$$F(u) = \mathcal{F}\{f(x)\} = \int_{-\infty}^{\infty} f(x) e^{-j2\pi u x} dx$$

$$f(x) = \mathcal{F}^{-1}\{F(u)\} = \int_{-\infty}^{\infty} F(u) e^{j2\pi u x} du$$

$$F(u, v) = \mathcal{F}\{f(x, y)\} = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(x, y) e^{-j2\pi(ux+vy)} dx dy$$

$$f(x, y) = \mathcal{F}^{-1}\{F(u, v)\} = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} F(u, v) e^{j2\pi(ux+vy)} du dv$$

$$F(u, v) = \cancel{\frac{1}{mn}} \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} f(x, y) e^{-j2\pi(\frac{ux}{m} + \frac{vy}{n})}$$

$$f(x, y) = \frac{1}{mn} \sum_{u=0}^{m-1} \sum_{v=0}^{n-1} F(u, v) e^{j2\pi(\frac{ux}{m} + \frac{vy}{n})}$$

10:15



Cai Yuxuan

2. LSI Systems & Transforms—definition of DFT

- The discrete Fourier transform (DFT) of a 2-D discrete function (or image) $f(x,y)$ of size $m \times n$ is defined by:

$$F(u, v) = \frac{1}{mn} \sum_{x=0}^{m-1} \sum_{y=0}^{n-1} f(x, y) \exp[-j2\pi(ux/m + vy/n)]$$

↓ 新邮件



Jiang Xudong (Assoc Prof)

收件人 你

上午8:30



It is not necessary for the forward transform.

Best Regards,

Jiang Xudong

It is not necessary

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Okay, thank you!

Ok, thanks.

Noted, Tha

← ∨ 答复

